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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,592	07/11/2001	William Holm	0104-0354P	7653

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BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
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NGUYEN, DONGHAI D

ART UNIT	PAPER NUMBER
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3729

NOTIFICATION DATE	DELIVERY MODE
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01/02/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

## Office Action Summary

**Application No.**

09/901,592

**Applicant(s)**

HOLM ET AL.

**Examiner**

Donghai D. Nguyen

**Art Unit**

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 19, 20, 31, 34 and 37-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 19, 20, 31, 34 and 37-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 26, 2007 has been entered.

### ***Claim Objections***

2. Claim 44 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim 43. See MPEP § 608.01(n). Accordingly, the claim 44 has not been further treated on the merits.

3. Claims 1, 19, 20, 39 and 41 are objected to because of the following informalities: "a substrate" (claims 1, 19, 39 and 41 line 3; claim 20, line 4) should be --the substrate--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-8, 19, 20, 31, 34 and 37-43 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter

which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added limitations: “add-on jetting of predetermined additional amounts or individual droplets of viscous medium or of solder paste on predetermined positions on the screen printed substrate while the screen printed viscous medium is still in viscous form” (see claims 1, 39 and 41) and “jetting additional viscous medium onto the while the screen printed viscous medium is still in viscous form” (see claims 19 and 20) was not described in the specification to show the inventors had possess of the claimed invention at the time the application was filed.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 8, 19, 20, 39 and 43, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,155,904 to Majd.

Regarding claim 1, Majd discloses a method of applying viscous medium on a substrate (30), said method comprising the steps of: providing a substrate (30) arranged for mounting of electronic components (44, 46, etc.) thereon; screen printing (see Col. 4, lines 19-21) predetermined amounts of a viscous medium (33, 37, etc.) on predetermined positions on the substrate (see Fig. 3); and add-on jetting (see Col. 5, lines 20-25) of predetermined additional

amounts of viscous medium (35, 39, etc.) on predetermined positions on the screen printed substrate (see Fig. 3) while the screen printed viscous medium is still in viscous form (inherent because following the screen printing step is the jetting step, see Col. 5, lines 20-21).

Regarding claim 8, Majd discloses the viscous medium through said add-on jetting which is different from the viscous medium applied through screen printing (see Col. 5).

Regarding claim 19, Majd discloses a method of applying viscous medium on a substrate, said method comprising the steps of: providing a substrate (30) arranged for mounting of electronic components (44, 46, etc.) thereon; screen printing (see Col. 4, lines 19-21) a viscous medium (33, 37, etc.) onto the substrate; and jetting (see Col. 5, lines 20-25) additional viscous medium (35, 39, etc.) onto the substrate (see Fig. 3) while the screen printed viscous medium is still in viscous form (inherent because following the screen printing step is the jetting step, see Col. 5, lines 20-21).

Regarding claim 20, Majd discloses a method of applying additional viscous medium on a substrate (30) that has been screen printed (see Col. 4, lines 19-21) with viscous medium (33, 37, etc.), said method comprising the step of: providing the substrate arranged for mounting of electronic components (44, 46, etc.) thereon; and jetting (see Col. 5, lines 20-25) additional viscous medium (35, 39, etc.) onto the substrate (see Fig. 3) while the screen printed viscous medium is still in viscous form (inherent because following the screen printing step is the jetting step, see Col. 5, lines 20-21).

Regarding claim 39, Majd discloses a method of applying viscous medium on a substrate, said method comprising the steps of: providing a substrate (30) arranged for mounting of electronic components (44, 46, etc.) thereon; screen printing (see Col. 4, lines 19-21)

predetermined amounts of a viscous medium (33, 37, etc.) on predetermined positions on the substrate; and add-on jetting (see Col. 5, lines 20-25) of individual droplets of viscous medium (35, 39, etc.) on predetermined positions on the screen printed substrate (see Fig. 3) while the screen printed viscous medium is still in viscous form (inherent because following the screen printing step is the jetting step, see Col. 5, lines 20-21).

Regarding claim 43, Majd discloses mounting electronic components (44, 46, etc.) on the substrate (30 see Fig. 4).

8. Claims 1, 8, 19, 20, 31, 34 and 37-43, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,159,171 to Cook et al.

Regarding claim 1, Cook et al disclose a method of applying viscous medium on a substrate (2), said method comprising the steps of: providing a substrate (2) arranged for mounting of electronic components (12) thereon; screen printing (see Col. 3, lines 8-11) predetermined amounts of a viscous medium (7, 67, etc.) on predetermined positions on the substrate (see Fig. 1C); and add-on jetting (32 or see Col. 4, line 34 to Col. 5, line 55) of predetermined additional amounts of viscous medium (glue, flux, 11, 73, 81, etc.) on predetermined positions on the screen printed substrate (see Figs. 5 and 7-10) while the screen printed viscous medium is still in viscous form (see Figs. 1 and 4).

Regarding claim 8, Cook et al disclose the viscous medium (flux or glue) through said add-on jetting which is different from the viscous medium (solder) applied through screen printing (see Col. 2, lines 57-68).

Regarding claim 19, Cook et al disclose a method of applying viscous medium on a substrate, said method comprising the steps of: providing a substrate (2) arranged for mounting of electronic components (12) thereon; screen printing (see Col. 3, lines 8-11) a viscous medium (7, 67, etc.) onto the substrate; and jetting (32 or see Col. 4, line 34 to Col. 5, line 55) additional viscous medium (glue, flux, 11, 73, 81, etc.) onto the substrate (see Figs. 5 and 7-10) while the screen printed viscous medium is still in viscous form (see Figs. 1 and 4).

Regarding claim 20, Cook et al disclose a method of applying additional viscous medium on a substrate (2) that has been screen printed (see Col. 3, lines 8-11) with viscous medium (7, 67, etc.), said method comprising the step of: providing the substrate arranged for mounting of electronic components (12) thereon; and jetting (32 or see Col. 4, line 34 to Col. 5, line 55) additional viscous medium (glue, flux, 11, 73, 81, etc.) onto the substrate (see Figs. 5 and 7-10) while the screen printed viscous medium is still in viscous form (see Figs. 1 and 4).

Regarding claims 31 and 34, Cook et al disclose jetting individual droplets having a predetermined volume one drop at a time at said predetermined positions on the screen printed substrate (see Figs. 7-10).

Regarding claim 39, Cook et al disclose a method of applying viscous medium on a substrate, said method comprising the steps of: providing a substrate (2) arranged for mounting of electronic components (12) thereon; screen printing (see Col. 3, lines 8-11) predetermined amounts of a viscous medium (7, 67, etc.) on predetermined positions on the substrate; and add-on jetting (32 or see Col. 4, line 34 to Col. 5, line 55) of individual droplets of viscous medium (glue, flux, 11, 73, 81, etc.) on predetermined positions on the screen printed substrate (see Figs. 5 and 7-10) while the screen printed viscous medium is still in viscous form (see Figs. 1 and 4).

Regarding claims 37, 38 and 40, Cook et al disclose the viscous medium applied through said add-on jetting is solder paste (see Figs. 7-10).

Regarding claim 41, Cook et al disclose a method of applying viscous medium on a substrate, said substrate being arranged for mounting of components thereon, said method comprising the steps of: providing a substrate (2) arranged for mounting of electronic components (12) thereon; screen printing see (Col. 3, lines 8-11) predetermined amounts of a viscous medium (7, 67, etc.) on predetermined positions on the substrate; and add-on jetting (32 or see Col. 4, line 34 to Col. 5, line 55) of solder paste (11, 73, 81, etc.) on predetermined positions on the screen printed substrate (see Figs. 5 and 7-10) while the screen printed viscous medium is still in viscous form (see Figs. 1 and 4).

Regarding claim 42, Cook et al disclose the viscous medium (11, 73, 81, etc.) through said add-on jetting which is the same as the viscous medium (7, 67, etc.) applied through screen printing (they are solder).

Regarding claim 43, Cook et al disclose mounting electronic components (12) on the substrate (2 see Fig. 3).

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



10. Claims 2-7, as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over either Majd or Cook et al in view of US Patent 5,097,516 to Amir.

Regarding claims 2-3, Neither Majd or Cook et al disclose the steps of: inspecting the results of solder applied on substrate and correcting solder if necessary. Amir teaches the inspecting the results of solder (12) applied on the substrate (10) and correcting solder by reprint solder to the board (see Col. 3, lines 12-21) for improving the process of applying solder to the substrate as well as saving time and cost in manufacturing the circuit board having component mounted thereon (see Col. 3, lines 18-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of either Majd or Cook et al by utilized the inspection and correction of solder printed on substrate as taught by Amir for improving the process of applying solder to the substrate as well as saving time and cost in manufacturing the circuit board having component mounted thereon.

The limitations of claims 4-7 also met as set forth above such as jetting is performed by a single jetting device and removing amounts of viscous medium from positions on the substrate (see Figs 3 and 7-10 of Cook et al).

#### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-8, 19, 20 31, 34 and 37-44 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art references cited for their teachings of applying viscous medium on a substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghai D. Nguyen whose telephone number is (571)-272-4566. The examiner can normally be reached on Monday-Friday (9:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (571)-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DN

December 21, 2007



Patent Examiner: Donghai D. Nguyen

12/21/07